

IN THE CLAIMS:

1. (Currently Amended) A suspension assembly for use in supporting a first actuation element of a microelectromechanical system and allowing movement of said first actuation element relative to a base substrate, said first actuation element comprising a moveable comb of a comb drive including a number of comb fingers interconnected by a comb beam, wherein said suspension assembly comprises:

a longitudinal center ~~beam~~bar comprising elongate first and second lateral sides; and  
a first plurality of first lateral beams~~arms~~ extending out from said center ~~beam~~bar,  
wherein, when said center ~~beam~~bar of said suspension assembly is actuated, at least one of said plurality of said first lateral ~~beams~~arms are stretched; and

a second plurality of second lateral arms, separate from and interconnected to said first actuation element, extending out from said center bar, wherein said first actuation element is suspended on said substrate by serial interconnection of said second plurality of arms, said center bar and said first plurality of arms.

2. (Original) A suspension assembly, as claimed in Claim 1, wherein said plurality of said first lateral beams is anchored to said base substrate.

3. (Currently Amended) A suspension assembly, as claimed in Claim 1, further comprising an actuation assembly, wherein said actuation assembly comprises a plurality of actuation ~~beams~~rails oriented substantially parallel to said center ~~beam~~bar and interconnected with ones of said plurality of said ~~first~~second lateral ~~beams~~arms.

4. (Currently Amended) A suspension assembly, as claimed in Claim 3, wherein said actuation assembly is disposed between said base substrate and said plurality of said ~~first~~second lateral beams.

5. – 7. Canceled

8. (Currently Amended) A suspension assembly, as claimed in Claim 3, further comprising a support assembly, wherein said support assembly comprises a first central ~~beam~~bar and a second central ~~beam~~bar adjacent to said first central ~~beam~~bar and a plurality of third and fourth lateral ~~beams~~arms extending out from said first and second central ~~beams~~bars.

9. (Currently Amended) A suspension assembly, as claimed in Claim 8, wherein said plurality of said third lateral ~~beams~~arms are interconnected with said plurality of said first lateral ~~beams~~arms, and wherein said plurality of said third lateral ~~beams~~arms are also stretched when said center ~~beam~~bar is actuated.

10. (Currently Amended) A suspension assembly, as claimed in Claim 8, wherein said plurality of said fourth lateral ~~beams~~arms are interconnected with said plurality of said first lateral ~~beams~~arms, and wherein said plurality of said fourth lateral ~~beams~~arms are also flexed when said center ~~beam~~bar is actuated.

11. (Currently Amended) A suspension assembly, as claimed in Claim 10, wherein said plurality of said actuation beams of said actuation assembly are disposed between and interconnected with said plurality of said first lateral ~~beams~~arms and said plurality of said fourth lateral ~~beams~~arms.

12. (Currently Amended) A suspension assembly for use in supporting a first actuation element of a microelectromechanical system and allowing movement of said first actuation element relative to a base substrate, said first actuation element comprising a moveable comb assembly of a comb drive including a number of comb fingers interconnected by a comb beam, wherein said suspension assembly comprises:

a longitudinal center ~~beam~~bar comprising elongate first and second lateral sides; and  
a first plurality of first and second lateral ~~beams~~arms and a second plurality of second lateral arms extending out from said center ~~beam~~bar, wherein, when said center ~~beam~~bar of said suspension assembly is actuated, said plurality of said first lateral beams are stretched, and said plurality of said second lateral beams are flexed, wherein said first and second arms are separate from and interconnected to said first actuation element and said first actuation element is suspended on said substrate by serial interconnection of said first arms, said center bar and said second arms.

13. (Currently Amended) A suspension assembly, as claimed in Claim 12, wherein said plurality of said first lateral ~~beams~~arms are anchored to said base substrate.

14. (Currently Amended) A suspension assembly, as claimed in Claim 12, wherein said plurality of said second lateral ~~beams~~arms are free of restrictive connections to said base substrate.

15. (Currently Amended) A suspension assembly, as claimed in Claim 12, further comprising an actuation assembly separate from and interconnected to said first actuation element, wherein said actuation assembly comprises a plurality of actuation ~~beams~~rails oriented substantially parallel to said center ~~beam~~bar and interconnected with ones of said plurality of said second lateral ~~beams~~arms.

16. (Currently Amended) A suspension assembly, as claimed in Claim 15, wherein said actuation assembly is disposed between said base substrate and said plurality of said first and second lateral ~~beams~~arms.

17. Canceled

18. (Currently Amended) A suspension assembly, as claimed in Claim 15, wherein said actuation assembly comprises a plurality of third lateral ~~beams~~arms extending between and interconnected with said plurality of said actuation ~~beams~~rails.

19. (Currently Amended) A suspension assembly, as claimed in Claim 18, wherein said first actuation element is interconnected to at least one of said plurality of said third lateral ~~beams~~arms.

20. (Currently Amended) A suspension assembly, as claimed in Claim 15, further comprising a support assembly, wherein said support assembly comprises a first central ~~beam~~bar and a second central ~~beam~~adjacent bar adjacent to said first central ~~beam~~bar and a plurality of fourth and fifth lateral ~~beams~~arms extending out from said first and second central ~~beams~~bars.

21. (Currently Amended) A suspension assembly, as claimed in Claim 20, wherein said plurality of said fourth lateral ~~beams~~arms are interconnected with said plurality of said first lateral ~~beams~~arms, and wherein said plurality of said fourth lateral ~~beams~~arms are also stretched when said center ~~beam~~bar is actuated.

22. (Currently Amended) A suspension assembly, as claimed in Claim 20, wherein said plurality of said fifth lateral ~~beams~~arms are interconnected with said plurality of said second lateral ~~beams~~arms, and wherein said plurality of said fifth lateral ~~beams~~arms are also flexed when said center ~~beam~~bar is actuated.

23. (Currently Amended) A suspension assembly, as claimed in Claim 22, wherein said plurality of said actuation beams of said actuation assembly are disposed between and interconnected with said plurality of said second lateral ~~beams~~arms and said plurality of said fifth lateral ~~beams~~arms.

24. (Currently Amended) A suspension assembly, as claimed in Claim 20, wherein said plurality of said fifth lateral ~~beams~~arms are free of restrictive connections to said base substrate.

25. (Currently Amended) A suspension assembly for use in supporting a first actuation element of a microelectromechanical system and allowing movement of said first actuation element of a microelectromechanical system relative to a base substrate, said first actuation element comprising a moveable comb assembly of a comb drive including a number of comb fingers interconnected by a comb beam, wherein said suspension assembly comprises:

a longitudinal center ~~beam~~bar comprising elongate first and second lateral sides; ~~and~~  
first, second, third, and fourth lateral ~~beams~~arms extending out from said center ~~beam~~bar, wherein said first and second lateral ~~beams~~arms extend from said first lateral side of said center ~~beam~~bar, and wherein said third and fourth lateral ~~beams~~arms extend out from said second lateral side of said center ~~beam~~bar, wherein said first, second, third, and fourth lateral ~~beams~~arms comprise respective first, second, third, and fourth attachment ends attached to said center ~~beam~~bar and respective first, second, third, and fourth peripheral ends disposed most remote from corresponding said first, second, third, and fourth attachment ends; ~~and~~

fifth and sixth lateral arms, separate from and interconnected to said first actuation element via interconnecting structure, extending out from said center bar;

wherein said first, second, third, and fourth peripheral ends of respective said first, second, third, and fourth lateral arms are anchored to the base substrate,

wherein, when said center ~~beam~~bar of said suspension assembly is in a resting position, each of said first, second, third, and fourth lateral ~~beams~~arms comprises a nominal length,

wherein, when said center ~~beam~~bar of said suspension assembly is in a displaced position, each of said first, second, third, and fourth lateral ~~beams~~arms comprises a stretched length, and

wherein said stretched length is longer than said resting length of each of said first, second, third, and fourth lateral ~~beams~~arms.

26. (Currently Amended) A suspension assembly, as claimed in Claim 25, wherein said longitudinal center ~~beam~~bar comprises first and second ~~beams~~bars that are joined together.

27. (Currently Amended) A suspension assembly, as claimed in Claim 26, wherein said first and second ~~beams~~bars are joined together through a homogenous interface.

28. (Currently Amended) A suspension assembly, as claimed in Claim 25, wherein said first, second, third, and fourth lateral ~~beams~~arms are substantially perpendicular to said center ~~beam~~bar ~~when~~when said center ~~beam~~bar is in a resting position.

29. (Currently Amended) A suspension assembly, as claimed in Claim 25, ~~further~~ comprising first and second flexure ~~beams~~, wherein said first flexure ~~beam~~fifth arm extends out from said first lateral side of said center ~~beam~~bar, wherein said second flexure ~~beam~~sixth arm extends out from said second lateral side of said center ~~beam~~bar, wherein said first and second fifth and sixth arms ~~flexure beams~~ comprise respective first and second proximal ends connected to said center ~~beam~~bar and respective first and second distal ends disposed most remote from corresponding said first and second proximal ends.

30. (Currently Amended) A suspension assembly, as claimed in Claim 29, wherein said first and second distal ends of respective said ~~first and second flexure beams~~fifth and sixth arms are free from attachment to said base substrate.

31. Canceled

32. (Currently Amended) A suspension assembly, as claimed in Claim ~~29~~25, wherein said ~~first flexure beam~~fifth arm is disposed between said first and second lateral ~~beams~~arms, and wherein said ~~second flexure beam~~sixth arm is disposed between said third and fourth lateral ~~beams~~arms.

33. (Currently Amended) A suspension assembly, as claimed in Claim 29, wherein, when said center ~~beam-bar~~ of said suspension assembly is in a displaced position, said center ~~beam-bar~~ is displaced by a first distance with respect to said base substrate, and said first and second distal ends of respective said ~~first~~fifth and ~~second flexure beams~~sixth arms are each displaced by a second distance greater than said first distance with respect to said base substrate.

34. (Currently Amended) A suspension assembly, as claimed in Claim 29, further comprising ~~third~~seventh and ~~fourth flexure beam~~seventh arms, wherein said ~~third flexure beam~~seventh arm extends out from said first lateral side of said center ~~beam-bar~~, wherein said ~~fourth flexure beam~~eighth arm extends out from said second lateral side of said center ~~beam-bar~~, wherein said ~~third and fourth flexure beams~~seventh and eighth arms comprise respective third



and fourth proximal ends connected to said center ~~beam~~bar and respective third and fourth distal ends disposed most remote from corresponding said third and fourth proximal ends.

35. (Currently Amended) A suspension assembly, as claimed in Claim 34, further comprising a first actuation ~~beam~~rail interconnected with said first and third distal ends of respective said ~~first~~fifth and ~~third flexure beams~~seventh arms, and a second actuation ~~beam~~rail interconnected with said second and fourth distal ends of respective said ~~second and fourth flexure beams~~sixth and eighth arms.

36. (Currently Amended) A suspension assembly, as claimed in Claim 35, wherein said first and second actuation ~~beams~~rails are disposed between ~~respective said flexure beams~~fifth, sixth, seventh and eighth arms and said base substrate.

37. (Currently Amended) A suspension assembly, as claimed in Claim 35, wherein ~~respective said flexure beams~~fifth, sixth, seventh and eighth arms are disposed between said first and second actuation ~~beams~~rails and said base substrate.

38. (Currently Amended) A suspension assembly, as claimed in Claim 35, wherein said first and second actuation ~~beams~~rails are substantially parallel to said center ~~beam~~bar.

39. (Currently Amended) A suspension assembly, as claimed in Claim 35, wherein said first actuation ~~beam~~rail is substantially perpendicular to said ~~first and third flexure beams~~fifth and

seventh arms, and wherein said second actuation ~~beam~~rail is substantially perpendicular to said ~~second and fourth actuation beams~~sixth and eighth arms.

40. (Currently Amended) A suspension assembly, as claimed in Claim 35, wherein said first actuation element is interconnected with at least one of said first and second actuation ~~beams~~rails.

41. – 61. Canceled

62. (New) A suspension assembly for use in supporting a first actuation element of a microelectromechanical system and allowing movement of said first actuation element relative to a base substrate, said first actuation element comprising a moveable comb assembly of a comb drive including a number of comb fingers interconnected by a comb beam, wherein said suspension assembly comprises:

- a longitudinal bar comprising elongate first and second lateral sides;

- a first plurality of first lateral arms extending out from said longitudinal bar, wherein, when said longitudinal bar of said suspension assembly is actuated so as to move relative to a longitudinal axis thereof, at least one of said plurality of said first lateral arms are stretched; and

- a second plurality of second lateral arms, separate from and interconnected to said first actuation element, extending out from said longitudinal bar, wherein said first actuation element is suspended on said substrate by serial interconnection of said second plurality of arms, said longitudinal bar and said first plurality of arms.